

Learning to Fly: The Wright Brother's Adventure			
2009 Science			
Academic Standards			
Minnesota Science			
Grade 6			
Activity/Lesson	State	Standards	
Wright Brothers: 1901 Glider	MN	SCI.6.6.1.2.1.4	Explain the importance of learning from past failures, in order to inform future designs of similar products or systems.
Wright Brothers: 1902 Glider	MN	SCI.6.6.1.2.1.4	Explain the importance of learning from past failures, in order to inform future designs of similar products or systems.
Wright Brothers: 1903 Flyer	MN	SCI.6.6.1.2.1.4	Explain the importance of learning from past failures, in order to inform future designs of similar products or systems.
1901: The First Improvement	MN	SCI.6.6.2.2.2.1	Recognize that when the forces acting on an object are balanced, the object remains at rest or continues to move at a constant speed in a straight line, and that unbalanced forces cause a change in the speed or direction of the motion of an object.
1901: The First Improvement	MN	SCI.6.6.2.2.2.2	Identify the forces acting on an object and describe how the sum of the forces affects the motion of the object.
1902: Success at Last	MN	SCI.6.6.1.2.2.1	Apply and document an engineering design process that includes identifying criteria and constraints, making representations, testing and evaluation, and refining the design as needed to construct a product or system that solves a problem.
1903: Powered Flight	MN	SCI.6.6.1.2.1.4	Explain the importance of learning from past failures, in order to inform future designs of similar products or systems.
1903: Powered Flight	MN	SCI.6.6.2.2.2.1	Recognize that when the forces acting on an object are balanced, the object remains at rest or continues to move at a constant speed in a straight line, and that unbalanced forces cause a change in the speed or direction of the motion of an object.
1904: Improvement in Dayton	MN	SCI.6.6.2.2.2.1	Recognize that when the forces acting on an object are balanced, the object remains at rest or continues to move at a constant speed in a straight line, and that unbalanced forces cause a change in the speed or direction of the motion of an object.
1904: Improvement in Dayton	MN	SCI.6.6.2.2.2.2	Identify the forces acting on an object and describe how the sum of the forces affects the motion of the object.

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Grade 7			
Activity/Lesson	State	Standards	
The Society	MN	SCI.7.7.1.1.2.1	Generate and refine a variety of scientific questions and match them with appropriate methods of investigation, such as field studies, controlled experiments, reviews of existing work and development of models.
1901: The First Improvement	MN	SCI.7.7.1.1.2.2	Plan and conduct a controlled experiment to test a hypothesis about a relationship between two variables, ensuring that one variable is systematically manipulated, the other is measured and recorded, and any other variables are kept the same (controlled).
New Data	MN	SCI.7.7.1.1.1.2	Understand that when similar investigations give different results, the challenge is to judge whether the differences are significant, and if further studies are required.
New Data	MN	SCI.7.7.1.1.2.2	Plan and conduct a controlled experiment to test a hypothesis about a relationship between two variables, ensuring that one variable is systematically manipulated, the other is measured and recorded, and any other variables are kept the same (controlled).
New Data	MN	SCI.7.7.1.1.2.3	Generate a scientific conclusion from an investigation, clearly distinguishing between results (evidence) and conclusions (explanation).
1902: Success at Last	MN	SCI.7.7.1.1.2.1	Generate and refine a variety of scientific questions and match them with appropriate methods of investigation, such as field studies, controlled experiments, reviews of existing work and development of models.
1903: Powered Flight	MN	SCI.7.7.1.1.2.1	Generate and refine a variety of scientific questions and match them with appropriate methods of investigation, such as field studies, controlled experiments, reviews of existing work and development of models.
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Grade 8			
Activity/Lesson	State	Standards	

The Society	MN	SCI.8.8.1.3.2.1	Describe examples of important contributions to the advancement of science, engineering and technology made by individuals representing different groups and cultures at different times in history.
1902: Success at Last	MN	SCI.8.8.1.1.2.1	Use logical reasoning and imagination to develop descriptions, explanations, predictions and models based on evidence.
1903: Powered Flight	MN	SCI.8.8.1.1.2.1	Use logical reasoning and imagination to develop descriptions, explanations, predictions and models based on evidence.
1903: Powered Flight	MN	SCI.8.8.1.3.3.1	Explain how scientific laws and engineering principles, as well as economic, political, social, and ethical expectations, must be taken into account in designing engineering solutions or conducting scientific investigations.
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Academic Standards			
Minnesota Science			
Grades 9-12			
Activity/Lesson	State	Standards	
The Society	MN	SCI.9-12.9.1.1.1.2	Understand that scientists conduct investigations for a variety of reasons, including: to discover new aspects of the natural world, to explain observed phenomena, to test the conclusions of prior investigations, or to test the predictions of current theories.
The Society	MN	SCI.9-12.9.1.3.4.6	Analyze the strengths and limitations of physical, conceptual, mathematical and computer models used by scientists and engineers.
Wright Brothers: 1900 Glider	MN	SCI.9-12.9.1.3.4.2	Determine and use appropriate safety procedures, tools, computers and measurement instruments in science and engineering contexts.
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Wright Brothers: 1902 Glider	MN	SCI.9-12.9.1.3.4.2	Determine and use appropriate safety procedures, tools, computers and measurement instruments in science and engineering contexts.
Wright Brothers: 1903 Flyer	MN	SCI.9-12.9.1.3.4.2	Determine and use appropriate safety procedures, tools, computers and measurement instruments in science and engineering contexts.

Meet the Wrights	MN	SCI.9-12.9.1.1.1.2	Understand that scientists conduct investigations for a variety of reasons, including: to discover new aspects of the natural world, to explain observed phenomena, to test the conclusions of prior investigations, or to test the predictions of current theories.
Meet the Wrights	MN	SCI.9-12.9.1.1.2.4	Use primary sources or scientific writings to identify and explain how different types of questions and their associated methodologies are used by scientists for investigations in different disciplines.
1900: Kitty Hawks	MN	SCI.9-12.9.1.2.2.1	Identify a problem and the associated constraints on possible design solutions.
1901: The First Improvement	MN	SCI.9-12.9.2.2.2.2	Explain and calculate the acceleration of an object subjected to a set of forces in one dimension ($F = ma$).
1902: Success at Last	MN	SCI.9-12.9.1.2.2.1	Identify a problem and the associated constraints on possible design solutions.
1903: Powered Flight	MN	SCI.9-12.9.1.2.1.1	Understand that engineering designs and products are often continually checked and critiqued for alternatives, risks, costs and benefits, so that subsequent designs are refined and improved.
1903: Powered Flight	MN	SCI.9-12.9.1.2.2.1	Identify a problem and the associated constraints on possible design solutions.
1903: Powered Flight	MN	SCI.9-12.9.1.3.3.1	Describe how values and constraints affect science and engineering.
1904: Improvement in Dayton	MN	SCI.9-12.9.1.3.3.2	Communicate, justify and defend the procedures and results of a scientific inquiry or engineering design project using verbal, graphic, quantitative, virtual or written means.
1904: Improvement in Dayton	MN	SCI.9-12.9.1.3.4.3	Select and use appropriate numeric, symbolic, pictorial, or graphical representation to communicate scientific ideas, procedures and experimental results.
1904: Improvement in Dayton	MN	SCI.9-12.9.2.2.2.2	Explain and calculate the acceleration of an object subjected to a set of forces in one dimension ($F = ma$).